

Amendments to the Claims:

Listing of Claims:

Claim 1 (original): A process for depositing silicon nitride films on wafers,
5 comprising:

providing a chemical vapor deposition (CVD) system comprising a tubular
furnace, at least one BTBAS (bis t-ButylaminoSilane) supply piping line connected to
a base portion of said tubular furnace, an exhaust piping line connected to an upper
portion of said tubular furnace, a bypass line connecting said BTBAS supply piping
10 line with said exhaust piping line, and a vacuum pump connected to said exhaust
piping line, wherein said bypass line is initially interrupted;

placing a batch of wafers into a tube of said tubular furnace;

flowing nitrogen-containing gas into said tube;

flowing BTBAS into said tube through said BTBAS supply piping line and said
15 vacuum pump maintaining pressure in said tube in a range of between about 0.1 Torr
and 3 Torr;

performing a silicon nitride deposition process in said tube to deposit a
BTBAS-based silicon nitride film on said wafers;

upon completion of said silicon nitride deposition process, interrupting said
20 BTBAS supply piping line and opening said initially interrupted bypass line; and
removing said batch of wafers.

Claim 2 (original): The process for depositing silicon nitride films on wafers
according to claim 1 wherein after removing said batch of wafers, the process further
25 comprises flowing cleaning gas into said tube.

Claim 3 (original): The process for depositing silicon nitride films on wafers
according to claim 2 wherein said cleaning gas comprises ClF_3 .

30 Claim 4 (original): The process for depositing silicon nitride films on wafers

according to claim 2 wherein said cleaning gas comprises NF_3 .

5 Claim 5 (original): The process for depositing silicon nitride films on wafers according to claim 1 wherein by opening said initially interrupted bypass line upon completion of said silicon nitride deposition process, said BTBAS remaining in said BTBAS supply piping line is evacuated through said bypass line without entering said tubular furnace, thereby eliminating particle problems.

10 Claim 6 (original): The process for depositing silicon nitride films on wafers according to claim 1 wherein said nitrogen-containing gas comprises ammonia gas.

15 Claim 7 (original): The process for depositing silicon nitride films on wafers according to claim 1 wherein silicon nitride deposition process is carried out at a temperature of between $450\sim 600^\circ\text{C}$.

20 Claim 8 (original): The process for depositing silicon nitride films on wafers according to claim 1 wherein said BTBAS is flowed into said tube at a flow rate of about $25\sim 500$ sccm.

25 Claim 9 (original): The process for depositing silicon nitride films on wafers according to claim 1 wherein said nitrogen-containing gas is flowed into said tube at a flow rate of about $50\sim 1000$ sccm.

Claims 10-15 (canceled)